CHIGNIK FIXED-LEADS MONITORING PROJECT, 2003

By

Kevin J. Clark

and

Kenneth A. Bouwens

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AUTHORS

Kevin J. Clark is the Chignik Area Assistant Management Biologist for the Alaska Department of Fish and Game, Division of Commercial Fisheries, 211 Mission Road, Kodiak, AK 99615.

Kenneth A. Bouwens is the Alaska Peninsula Research Biologist for the Alaska Department of Fish and Game, Division of Commercial Fisheries, 211 Mission Road, Kodiak, AK 99615.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ABSTRACT

In 2003, the cooperative salmon seining fleet utilized fixed-leads in the Chignik Management Area to more efficiently harvest sockeye salmon. The use of fixed-leads prompted the department to initiate a study to answer questions about possible environmental impacts. Fixed-leads were operated by the cooperative in the Chignik River near a location locally known as "Pillar Rock". Monitoring was accomplished by observing the fixed-leads area for 45-minute blocks of time throughout the summer on a predetermined schedule. The information recorded included the presence of wildlife and their interaction with the fixed-leads, fishing activity, and potential habitat changes associated with the fixed-leads. The habitat around the fixed-leads, and sites approximately 100 m upstream and downstream of the fixed-leads, were photographed at the lowest tide possible once a week to document any changes throughout the season. Aerial photographs of the fixed-leads and the area around it were also taken periodically throughout the season to assess possible impacts. Songbirds, seals, sockeye salmon, and other fish were the only groups that showed a significant deviation in the number of observations when the fixed-leads were deployed compared to when the fixed-leads were not deployed. Potential impacts on pink and chum salmon from the operation of the fixed-leads and the subsequent change in fishing patterns remain unknown. No habitat changes were observed above the low water mark. Habitat changes below the low water mark included the removal of submerged rocks, boulders, and other debris from the fishing area and were considered to be a minor impact to the aquatic habitat in the immediate area.

INTRODUCTION

The Alaska Board of Fisheries (BOF), in January of 2002, enacted regulations that allowed for the formation of a cooperative salmon seining fishery in the Chignik Management Area (CMA). In an effort to increase efficiency of the cooperative fleet, the BOF subsequently approved, in December 2002 the use of fixed-leads in the CMA for the cooperative fleet beginning in the 2003 season. The fixed-leads consisted of a buoyed head rope, a leaded bottom rope, and four-inch mesh seine webbing. The fixed-leads were 125 fathoms in length and were anchored with large pieces of steel. Lights and other navigational markings were placed on the fixed-leads to aid in navigation. A commissioner's permit was issued to the Chignik Seafood Producers Alliance (CSPA) for the operation of two fixed-leads in an area locally known as "Pillar Rock" (Permit 2003-10; Appendix A). The Alaska Department of Fish and Game (ADF&G) instituted a monitoring project to assess possible impacts associated with the fixed-leads (ADF&G 2003). The intent of this project was to document any interactions or behavioral changes of local fauna associated with the fixed-leads and to assess potential habitat changes in the area of the fixed-leads.

Fixed-leads were operated in the Chignik River in an area upstream from Mensis Point; the most upstream boundary markers in the Chignik Lagoon commercial fishery (Figure 1). Regulatory markers were placed near Pillar Rock, at approximately 56° 16.74' N lat., 158° 39.01' W long. and at 56° 16.57' N lat., 158° 38.84' W long., as a means of differentiating the area as the cooperative fleet's upstream boundary in accordance with the commissioner's permit.

Two commercial fleets currently harvest salmon in the CMA. The cooperative fleet (CSPA) annually forms a collective to work together in catching havestable surplus salmon in the CMA for greater efficiency and increased market quality. The use of fixed-leads in the Pillar Rock location and the ability to deliver live fish to the processors were two methods utilized by the cooperative fleet for this purpose. The competitive fleet continues to harvest surplus salmon using traditional means and methods by competing to harvest salmon as individuals. Each fleet were allocated a portion of the harvestable surplus of sockeye salmon in the CMA (5 ACC 15.359).

In 2003, the cooperative fleet fished a total of 85.6 days in the Chignik Bay District and deployed and utilized at least one fixed-lead in the Pillar Rock area for 61.7 days (72%; Table 1).

METHODS

Visual Monitoring

Schedule

ADF&G technicians monitored the fixed-leads study area on a predetermined schedule (Table 2). The study area was monitored for two 45-minute periods per day in June, and one 45-minute

period every other day for the remainder of the season. The sampling schedule was modified inseason for the months of August and September. Initial monitoring operational plans called for increasing sampling efforts to one 45-minute observing period per day for the month of August and no sampling in September. Observations in July indicated that the planned increase in monitoring effort scheduled for August was not necessary and the department decided to keep the observation schedule at once every other day unless data indicated that increased observations were warranted. Monitoring times were randomly assigned hours between 6:00 AM and 10:00 PM. Higher tidal stages were twice as likely to be monitored than the hours corresponding with lower tidal stages.

Location

Monitoring stations were established on the shoreline where the fixed-leads attached to the beach (Figure 2). The study area was monitored regardless of whether the fixed-leads were deployed. The location of each monitoring station was randomly chosen from either the southern or northern side of the area (Figure 2). The study area was defined as a three-dimensional space with a horizontal component measuring 15 m from both the upstream and downstream sides of the fixed-leads, and with a vertical component from the water surface to the top of rock outcrops in the vicinity of the fixed-leads study area.

Monitoring Techniques

Information collected included observations of climatic conditions, fishing activity, wildlife interactions (active and passive), and possible habitat changes. This information was collected by digital cameras and on videotape.

All wildlife observations within the fixed-leads study area were recorded by species when possible. Difficulties in identification, and the low abundance of some species, required combining some species into functional groups. Birds were grouped as follows:

- Loons (e.g., common, red-throated, arctic, etc.)
- Dabbling Ducks (e.g., mallards, pintails, teal, etc.)
- Diving Ducks (e.g., scaups, goldeneyes, harlequins, etc.)
- Raptors (e.g., hawks, eagles)
- Corvids (e.g., ravens, crows, magpies)
- Shorebirds (e.g., sandpipers, phalaropes, snipes, etc.)
- Gulls (e.g., glaucous, glaucous-winged, mew, etc.)
- Swallows (e.g., violet-green, bank, cliff, etc.)
- Songbirds (e.g., finches, sparrows, phoebes, thrushes, etc.)

The fixed-leads were periodically observed for possible entanglement of wildlife by closely examining the length of the fixed-leads using a skiff.

Consistent terms were employed when describing wildlife behavior and were defined as follows:

Birds

- "Passing Through" - when a bird was flying over and through the monitoring area.
- "Near the Lead" - when a bird was on the water surface in the monitoring area.
- "Feeding" - when a bird was actively feeding within the monitoring area, from the water surface or air. Brief notes were kept on these interactions and video or photographs were taken in some cases.
- "Entangled" - when a bird was in physical contact with the fixed-lead and delayed because of interaction with the lead. Detailed notes on "entangled" birds were kept describing the degree of entanglement and the result of the entanglement and video or photographs were taken. Any observed bird mortality caused by interaction with the lead was collected for species verification.

Mammals

- "Near the Lead" - when a mammal was located within the monitoring area.
- "Feeding" - when a mammal was observed actively feeding within the monitoring area. Detailed notes on "feeding" mammals were to be taken and video or photographs were also taken.
- "Entangled" - when a mammal was in contact with the lead and delayed for any time by the interaction with the lead. Detailed notes on "entangled" mammals were taken and video or photographs were taken. The carcass of any mammal mortality caused by interaction with the lead were collected if possible for species verification.

Fish

- "Holding" - when fish were slowed or their upstream migration was stopped within the monitoring area.
- "Entangled" - when a fish was in contact with the lead and delayed for any time by the interaction with the lead. Detailed notes on "entangled" fish were taken and video or photographs were taken. Fish mortality caused by interaction with the lead was noted and the carcass was examined if possible for species verification.

Leads Monitoring Data Analysis

The number of 45-minute observation periods that a member of a group was observed over the season was tallied, by functional group. A large sample size test of proportions (*z*-test; Zar 1999) was used to determine if the number of observations differed between those monitoring periods when the leads were deployed and when the leads were not deployed.

Habitat Monitoring

Six separate monitoring stations were established to track potential changes in the habitat as a result of the fixed-leads. Stations 1 and 2 were located at the terminal ends of the fixed-leads. Additional monitoring stations were located on the upstream and downstream sides of the fixed-leads study area. The stations located furthest downstream were located near the Mensis Point commercial regulatory markers, approximately 100 m downstream from the leads with one station on each bank. The station located furthest upstream were located approximately 100 m upstream from the fixed-leads with one station on each bank and these were used as control sites. The habitat in this area was comparable to that around the fixed-leads, but was not directly impacted by commercial fishing activities.

Digital photographs were taken of the habitat at all six stations at approximately seven-day intervals. The photographs were taken at the lowest tides possible.

Standardized aerial photographs were taken of the six monitoring stations periodically throughout the season and at the lowest tides possible.

Habitat Monitoring Data Analysis

The habitat monitoring photographs were sequentially reviewed and qualitatively assessed for deviations between the fixed-leads sites and the control sites.

Mapping

A base map was created using GPS technology. The shoreline of the Chignik River from the outlet of Chignik Lake to Mensis Point in Chignik Lagoon was mapped by utilizing coordinates from a hand-held GPS unit that were recorded in a field notebook every 20 m or closer if a change in direction occurred (Figure 2).

RESULTS

Visual Monitoring

Quantitative Data

Fixed-leads Stations 1 and 2 were monitored for eighty-four 45-minute periods (63 hours total) regardless of whether the fixed-leads were deployed. The fixed-leads were deployed for 32 (38%) of these observations (Table 2). Most species were rarely present (Table 3) so analysis of their behavior was not possible. Bird and fish species were often observed in aggregates (i.e. flocks or schools). Data were compiled by the number of 45-minute monitoring periods that contained at least one member of a particular species or functional group (species that were

pooled as previously described). A large sample test of two proportions showed no significant difference ($P>0.05$) between occurrences of any species or functional group in the presence or absence of leads except songbirds, seals, sockeye salmon, and other fish (Table 3). The songbirds, seals and other fish groups did not meet the assumption of 5 or more observations, which can result in rejecting the null hypothesis when the null hypothesis is true; therefore, the significance of the difference is uncertain.

As expected the fixed-leads acted to aggregate migrating fish, thus increasing the number of times sockeye salmon were observed when the fixed-leads were deployed. The "other fish" category included adult coho salmon and the fixed-leads aggregated this species similarly to sockeye salmon. Seals are typically attracted to areas where salmon are concentrated, and the increase in seal abundance when the fixed-leads were deployed was not surprising. Seals routinely prey on salmon near the Chignik River weir and were generally less abundant at the fixed-leads site than at the Chignik River weir (George Pappas, Alaska Department of Fish and Game *personal communication*). The number of observations of songbirds was significantly less when the fixed-leads were deployed. This may have been a function of increased human activity in the area, seasonal migrations of these birds and the increased use of the fixed-leads in the later part of the season; or it also could be a case of type I statistical error (falsely rejecting the H_0 because of low overall abundance).

Qualitative Data

Many of the observations of this project were qualitative and thus could not be readily quantified or statistically evaluated. The following narrative is a chronological summary of ancillary comments made while monitoring the fixed-leads study area:

June 6 A skiff with three individuals aboard (one a diver) was noticed bringing rocks ashore from an area downstream of the fixed-leads site.

June 12 Two sockeye salmon and 15 flounder were noticed entangled in the north bank fixed-lead.

June 29 Fixed-leads were inspected for entangled fish and/or wildlife and nothing was noted.

June 30 Fifteen small salmon (presumed to be sockeye salmon jacks) were noticed entangled in the north fixed-lead. Later that day, the fixed-leads were inspected again for entangled fish and none were seen.

July 9 Fixed-leads were again inspected for entangled fish and 25 sockeye salmon and 17 Dolly Varden char were noticed entangled in the fixed-leads. It was mentioned that the fish were caught low in the fixed-lead and it was difficult to determine their species. Five boats were noticed driving along the fixed-leads to scare the fish off the fixed-leads and into a seine set.

July 11 Fifteen fish were noticed entangled in the fixed-leads, but the observer could not determine if they were sockeye salmon or Dolly Varden char.

July 25 An impression was noted on the beach where a boat was allowed to go dry at low tide. At that same time, photos were taken of a stone wall erected to block fish passage around the shoreward end of the fixed-lead at high tide.

July 29 A rock wall was again documented.

July 30 Fixed-leads were again inspected for entanglements and nothing was noted.

August 4 Eight sockeye salmon were found entangled in the north bank fixed-lead. The southern bank lead was not monitored, as a diver recently cleaned the fixed-lead.

August 12 Fixed-leads were not deployed but the anchors remained in the water (eight buoys were counted), also, three dead starry flounders were noticed on the southern bank beach.

August 24 An attempt was made to examine the fixed-leads for entangled fish but poor visibility allowed only the top six inches of the fixed-lead to be examined. Nothing was seen.

August 28 One sockeye salmon and one Dolly Varden char was found dead on the north bank beach near the fixed-lead. One flounder was noticed entangled in the fixed-leads.

August 30 Two flounders were noticed entangled in the fixed-lead, and it was noticed that the net was very clean.

September 4 Fixed-leads were again monitored for entanglement, and no entangled fish were observed.

September 5 Two skiffs were observed herding fish into the fixed-leads. A seal was observed inside of a seine set, but the net was held open to allow the seal to escape, and no entanglement was noted.

September 8 Six flounders were found entangled in the northern fixed-lead. Some dark red sockeye salmon were noticed intermixed with a substantial number of coho salmon.

Juvenile salmonids were noticed throughout the summer jumping in the area of the fixed-leads, but species identification and quantification was not possible. Similar juvenile fish activity was noticed in other areas in the lower Chignik River.

Habitat Monitoring

The benthic habitat was monitored in the area of the fixed-leads for potential impacts from commercial fishing activity. With the exception of the comments listed in the previous section (e.g., a rock wall at the high tide line in the area of the fixed-leads), no habitat changes or degradation were noted. The benthic habitat in the lower Chignik River and upper Chignik Lagoon consisted of sand and small gravel. No benthic vegetation (specifically eelgrass) was observed upstream of the Mensis Point markers (Figure 2).

Mapping

GPS coordinates were obtained of the Chignik River shoreline, from the outlet of Chignik Lake to the Mensis Point markers at the head of the Chignik Lagoon (Figure 2). This was done so that a detailed map of the area could be created.

Photo-documentation

Digital photographs and video footage were collected periodically throughout the season. Digital photographs (aerial and terrestrial) included pictures of the general area, fishing activities, fixed-leads, wildlife, habitat disturbances, erected structures, and fixed-lead maintenance. Video footage included scenes of fishing activity, fixed-lead removal, and wildlife.

DISCUSSION

Animal groups that showed an increase in abundance when the leads were deployed correlated well with the intended effects of the fixed-leads. Sockeye salmon and “other fish” would be expected to build up downstream from the location of the fixed-lead. This increase in concentration of salmon would in turn attract predators, primarily harbor seals.

Concerns that the fixed-leads would affect the upstream migration of chinook salmon seem unfounded. The 2003 chinook salmon escapement through the weir was the highest on record (6,412 fish) and indicates, along with no observations of chinook salmon entangled in the fixed-leads, that chinook salmon were able to avoid the fixed-leads and accompanying purse seines and continue upstream.

Pink salmon escapement (1,897 fish) past the weir was lower than the recent average (4,402 pink salmon from 1995 to 2002; Watchers 2003), whereas pink salmon returns in most other systems in the CMA were strong in 2003. However, historic pink salmon catch and escapement in the Chignik Bay District is not comparable to the 2003 season. Changes in the localized fishing patterns resulted in increased effort in the upper Chignik Lagoon near the fixed-leads, which may have reduced fishing pressure on pink salmon in the lower Chignik Lagoon and Bay. The lower than average escapement may have been the result of a weak localized return to the Chignik

River. Pink salmon have represented a minor portion of the total salmon returns to the Chignik River and it is not known if the fixed-leads had an effect on the pink salmon escapement.

Chum salmon escapement past the Chignik River weir was comparable to the escapement during the last four years, and was weak throughout the CMA generally. Chum salmon escapement past the weir is usually small (ranging from 48 to 483 fish from 1996 to 2003; Watchers 2003). Any effect caused by the use of the fixed-lead in relation to chum salmon escapement to the Chignik River is unknown. Changes in fishing patterns, as previously discussed in relation to pink salmon, and their effects on escapement to streams in the Chignik Lagoon and Bay remain unknown.

No entanglements were documented involving birds or mammals. Fish were occasionally reported entangled in the fixed-leads and included sockeye and coho salmon, flounder, and Dolly Varden char. The number of fish entangled in the fixed-leads was relatively small, and most of the entangled salmon were sold in the commercial harvest or reported as personal use (Jamie Ross, CSPA, *personal communication*). Any changes in the current mesh size of the fixed-lead may change the potential for fish entanglements. Smaller mesh would likely entangle more Dolly Varden char and flounders, whereas larger mesh may entangle more salmon.

Habitat changes from the fixed-leads and fishing activity associated with the fixed-leads involved the removal of rocks and other debris from the river substrate in the area downstream of the fixed-leads study area. Members of CSPA removed rocks, boulders, and other debris (including a piling left over from a fish trap used before statehood) to clear an area to deploy fishing gear without damaging their nets or other equipment. It was noted in the monitoring observations that rocks were removed from the streambed and deposited at other locations. This area in the Chignik River/Lagoon did not contain aquatic vegetation (eelgrass) so the changes in the substrate caused by the removal of rocks and other debris is not believed to be detrimental to the habitat at this location. CSPA is currently in the process of obtaining permits for the removal of rocks, boulders, and other debris from fishing areas.

The use of fixed-leads in the CMA by the CSPA did not appear to have any measurable effects on wildlife or habitat.

LITERATURE CITED

ADF&G (Alaska Department of Fish and Game). 2003. Chignik operational plans, 2003. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 4K03-28, Kodiak.

Watchers, G. M. 2003. Chignik, Alaska Peninsula, and Aleutian Islands management areas salmon daily and cumulative escapement counts for river systems with weirs, 1992-2002 and available air and water temperature data. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 4K03-44, Kodiak.

Zar, J.H. 1999. Biostatistical Analysis (4th ed.). Prentice-Hall, Inc. New Jersey, USA.

Table 1. Chignik cooperative fleet commercial fishing period opening and closing dates and fixed-lead use data, 2003.

	Opened		Closed				
Period	Date	Time	Date	Time	Total Hrs.	Hrs. Leads Used	Comments
1	6/4	6:00 PM	6/9	9:00 AM	111	48	North Side Lead Only
2	6/10	11:00 pm	6/13	2:00 PM	63	36	North Side Lead Only
3	6/15	7:00 PM	6/26	1:00 PM	258		Leads Not Deployed
4	6/28	3:00 PM	7/2	3:00 AM	84	72	Both Leads Deployed
5	7/3	6:00 AM	7/13	2:00 PM	248	210	Both Leads Deployed
6	7/15	1:00 AM	7/23	10:00 AM	201	152	Both Leads Deployed
7	7/26	7:00 AM	7/28	7:00 AM	48		Leads Not Deployed
8	7/29	9:00 AM	8/10	2:00 PM	293	242	South Side Removed 8/8
9	8/13	4:00 PM	8/18	6:00 AM	118	112	Set South Lead 6:30 8/16
10	8/21	5:00 PM	9/16	11:59 PM	631	608	North Lead Only Primarily
Total					2,055	1,480	

Table 2. Chignik cooperative fixed-leads monitoring schedule, 2003.

Date	Time[a]	Bank	Leads Deployed	Date	Time[a]	Bank	Leads Deployed	Date	Time[a]	Bank	Leads Deployed
6/2	10:00	S	No	6/21	18:00	N	No	8/8	15:00	S	Yes
6/2	19:00	S	No	6/22	13:00	N	No	8/10	15:00	N	No
6/3	15:00	N	No	6/22	20:00	N	No	8/12	9:00	S	No
6/3	21:00	N	No	6/23	9:00	No Observations		8/14	14:00	N	Yes
6/4	9:00	S	No	6/23	21:00	No Observations		8/16	11:00	S	Yes
6/4	15:00	S	No	6/24	11:00	S	No	8/19	18:00	N	No
6/5	7:00	N	No	6/24	12:00	S	No	8/21	14:00	N	No
6/5	12:00	S	No	6/25	6:00	N	No	8/22	10:00	S	Yes
6/6	11:00	N	No	6/25	10:00	N	No	8/24	13:00	S	Yes
6/6	13:00	N	No	6/26	12:00	N	No	8/26	16:00	S	Yes
6/7	6:00	No Observation		6/26	15:00	N	No	8/28	15:00	N	Yes
6/7	11:00	N	Yes	6/27	7:00	S	No	8/30	7:00	N	Yes
6/8	8:00	S	Yes	6/27	11:00	N	No				
6/8	10:00	S	Yes	6/28	8:00	N	No	9/2	18:00	No Observation	
6/9	6:00	N	No	6/28	9:00	N	No	9/4	8:00	S	Yes
6/9	9:00	S	No	6/29	7:00	N	Yes	9/5	12:00	S	Yes
6/10	10:00	S	No	6/29	15:00	S	Yes	9/6	7:00	No Observation	
6/10	14:00	N	No	6/30	9:00	N	Yes	9/8	16:00	S	Yes
6/11	11:00	S	Yes	6/30	15:00	S	Yes	Project Completed			
6/11	12:00	S	Yes								
6/12	6:00	S	Yes	7/1	16:00	N	Yes				
6/12	9:00	S	No	7/3	17:00	N	Yes				
6/13	7:00	N	No	7/5	21:00	S	Yes				
6/13	14:00	S	No	7/7	22:00	N	Yes				
6/14	13:00	N	No	7/9	13:00	S	Yes				
6/14	19:00	N	No	7/11	7:00	N	Yes				
6/15	10:00	S	No	7/13	9:00	N	No				
6/15	18:00	S	No	7/15	15:00	S	No				
6/16	11:00	S	No	7/17	19:00	N	Yes				
6/16	15:00	S	No	7/19	8:00	N	Yes				
6/17	9:00	S	No	7/21	21:00	No Observation					
6/17	18:00	S	No	7/23	6:00	N	No				
6/18	10:00	S	No	7/25	8:00	S	No				
6/18	20:00	S	No	7/27	17:00	S	No				
6/19	10:00	S	No	7/29	10:00	S	No				
6/19	11:00	N	No	7/31	7:00	N	Yes				
6/20	6:00	N	No								
6/20	18:00	N	No	8/4	15:00	S	Yes				
6/20	6:00	N	No	8/6	20:00	No Observation					

[a] Randomly generated start time for 45-minute monitoring periods. Some scheduled observation periods were missed.

Table 3. Number of 45-minute monitoring periods when wildlife was observed, by group, during the Chignik cooperative fixed-leads monitoring project, 2003.

Group	Leads (n=32)	No Leads (n=52)	*P* (*Z*- test)
Loons	0	0	NA
Dabbling Ducks	1	2	0.22
Diving Ducks	1	0	NA
Raptors	13	27	0.08
Corvids	7	9	0.15
Shorebirds	1	4	0.09
Gulls	23	31	0.06
Swallows	2	11	0.15
Songbirds	1	11	**0.01**
Seals	6	0	**0.01**
Land Otters	2	1	0.07
Beavers	0	1	0.11
Sockeye Salmon	16	12	**0.01**
Other fish	7	1	**0.01**

[a] Shows a significant difference ($P<0.05$) when fixed-leads were used.

Table 4. Average number of wildlife observed per 45-minute monitoring period, by group, during the Chignik cooperative fixed-leads monitoring project, 2003.

Group	Leads (n=32)	No Leads (n=52)
Loons	0.00	0.00
Dabbling Ducks	0.06	0.09
Diving Ducks	0.00	0.00
Raptors	0.72	1.62
Corvids	0.44	0.27
Shorebirds	0.06	0.50
Gulls	3.53	8.54
Swallows	0.53	3.27
Songbirds	0.31	0.33
Seals	0.25	0.02
Land Otters	0.09	0.02
Beavers	0.00	0.02

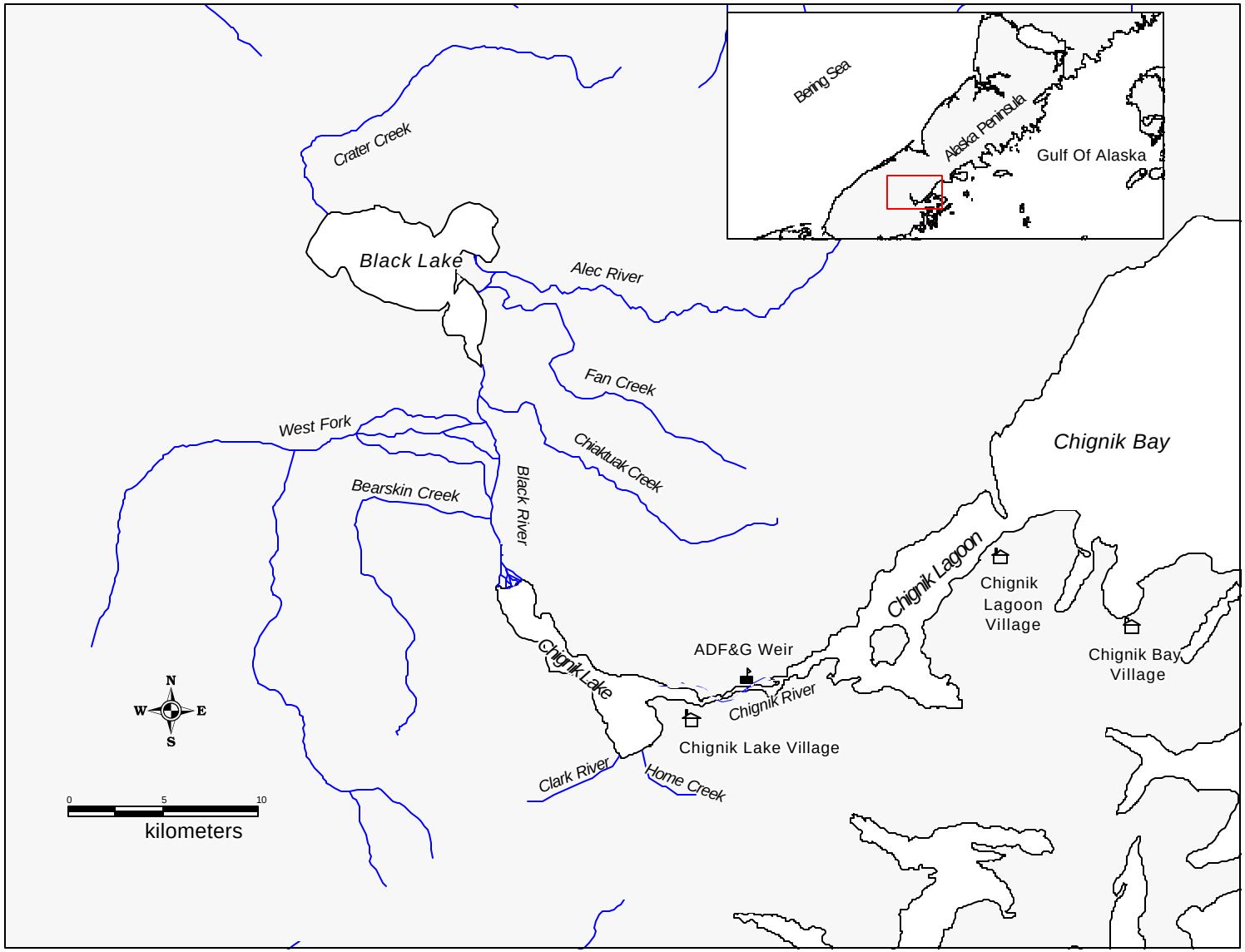

Figure 1. Map of the Chignik River watershed with an inset of the Alaska Peninsula.

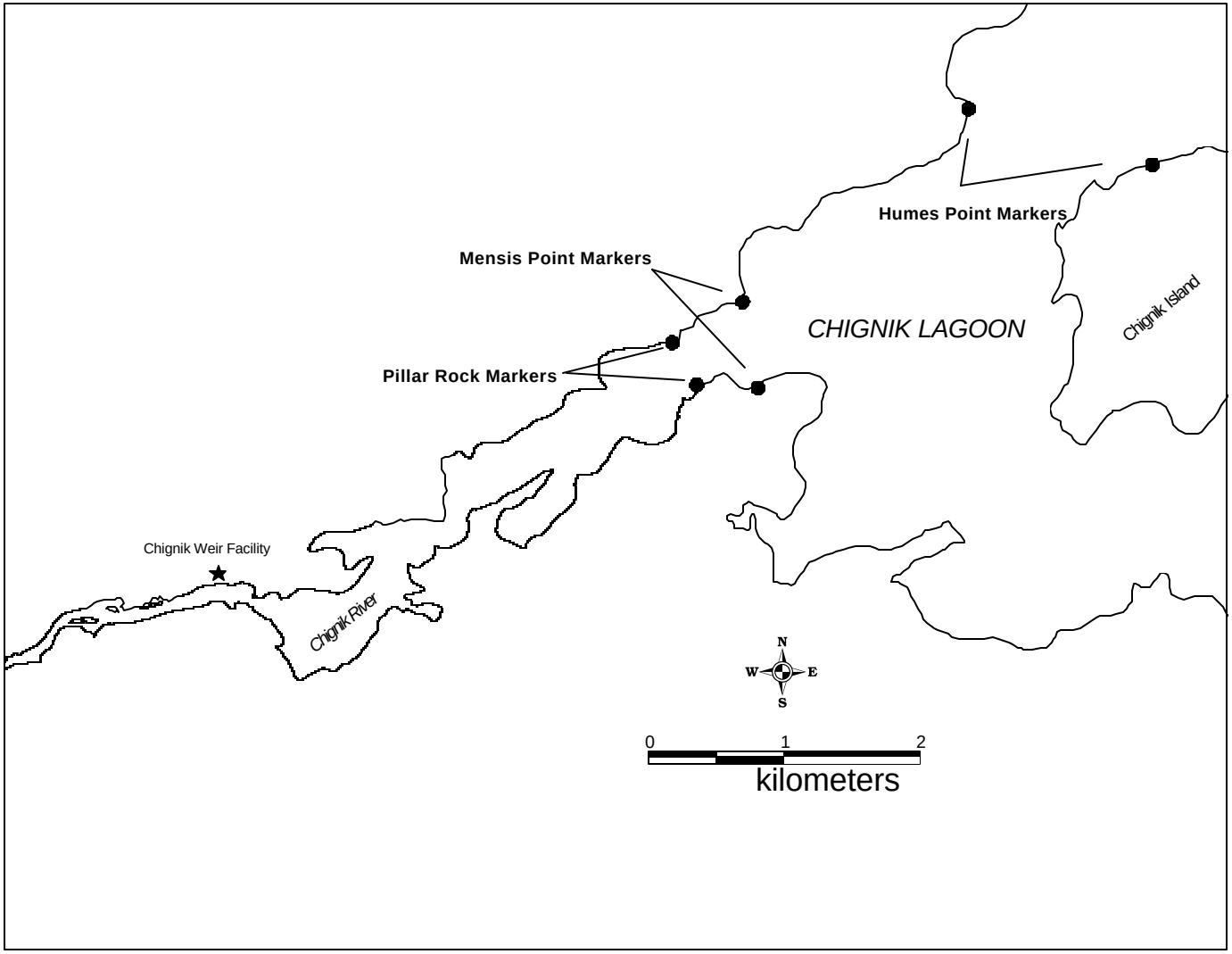

Figure 2. Map of the Chignik River and upper Chignik Lagoon, depicting the commercial fishing regulatory marker locations.

APPENDIX

Appendix A.1. Commissioner's Permit Salmon Fixed-leads – 2003.

ALASKA DEPARTMENT OF FISH AND GAME
CHIGNIK MANAGEMENT AREA COMMISSIONER'S PERMIT
SALMON FIXED-LEADS - 2003

NAME: Chignik Seafood Producers Alliance (CSPA) ADF&G # _____

OPERATOR: Axel Kopun, President CSPA

ADDRESS: Summer: P.O. Box 30 Winter: 16435 Nicole Way
Chignik Bay, AK 99564 Eagle River, AK 99577
phone (907) 749-2204 phone (907) 622-6226

In addition to current Chignik Management Area salmon commercial fishing regulations, participants agree to the following conditions:

1. Permit is valid from 8:00 A.M. June 1, to NOON September 30, 2003.

2. Permit is valid for a total of two fixed-leads to be located in Chignik Lagoon.

3. One lead may be attached to the beach at approximately the high tide mark at approximately 56° 16.74' N. lat., 158° 39.01'W. long. A second lead may be attached to the beach at approximately the high tide mark at approximately 56° 16.57' N. lat., 158° 38.84' W. long. These locations are upstream of the regulatory closed water boundary at Hume Point (5 AAC 15.330), near a location known at Pillar Rock.

4. Each lead may be up to 125 fathoms in length and no more than 100 meshes in depth.

5. Each lead shall be made of seine webbing no greater than 4 inch mesh size.

6. Each lead must have a corkline and a leadline and be anchored at both ends and at appropriate intervals along the leadline to hold position in essentially a straight line.

7. A distance of at least 100 feet of open space must always be provided for at mid channel between the two leads.

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8. Each lead corkline must have operating white lights at night every ten fathoms along the entire length of the corkline, and have appropriate operating port (red) and starboard (green) lights on the seaward end of the leads to mark the navigable channel between the leads.

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9. The ADF&G may verbally request the removal of the leads at any time; upon the removal request by ADF&G, the operator must completely remove the leads from the water within two hours.

10. Leads shall be completely removed from the water prior to the closure of each co-op fishing period and may be installed, in the water, at the beginning of each co-op fishing period.

11. One end of a harvesting vessel's seine may be attached to the seaward end of the lead for the purpose of harvesting salmon.

12. The aggregate length of the lead and purse seine may not be more than 250 fathoms.

13. An ADF&G observer may sample and measure all catch and bycatch of the leads and the harvesting vessel's seine. The vessel operator and crew must exercise patience and slow the pace of fishing, if required, to accommodate the accurate collection of all data required from the ADF&G observer.

14. Participants will notify ADF&G in Chignik prior to commencement of lead operation and at the conclusion of lead operation.

15. The Chignik Seafood Producers Alliance will provide ADF&G a logbook for each lead specifying, on a daily basis, the time each lead is fishing, repairs, alterations, maintenance (cleaning), and other data as requested by ADF&G.

16. Vessels must adhere to all commercial fishing and landing requirements.

17. The Chignik Seafood Processors Alliance is responsible for the actions of contractors, agents, or other persons who perform work to accomplish the goals of the cooperative fishery management plan, 5 AAC 15.359. For any activity that significantly deviates from the approved plan and permits, the permittee shall notify ADF&G, Division of Commercial Fisheries, and obtain written approval in the form of a permit amendment before beginning the activity. Any action taken by the permittee or an agent of the permittee that increases the project's overall scope or that negates, alters, or minimizes the intent or effectiveness of any stipulation contained in this permit will be deemed a significant deviation from the approved plan. The final determination as to the significance of any deviation and the need for a permit amendment is the responsibility of ADF&G. Therefore, it is recommended that ADF&G, Division of Commercial Fisheries, be consulted immediately when a deviation from the approved plan is being considered.

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18. This permit does not relieve the Chignik Seafood Processors Alliance, their contractors, agents, or other persons who perform their work from the responsibility for securing other permits: state, federal, or local.

19. This permit may be modified or voided by the ADF&G at any time.

I _____, for the Board of Directors of the Chignik Seafood Producers Alliance, hereby authorize the release of confidential fish ticket harvest information that results from my participation in the 2003 Chignik Management Area salmon fishery. I understand this information will be used for reporting of stock condition on Chignik Management Area salmon and any effects the lead may have on the salmon stocks and habitat in Chignik Lagoon. I also agree to abide by all permit terms stated above.

Axel Kopun, President CSPA _____ _____

OPERATOR DATE

_____ _____

ADF&G REPRESENTATIVE DATE

Appendix A.2. Commissioner's Permit Salmon Fixed-leads – 2003, Amendment A.

CHIGNIK MANAGEMENT AREA COMMISSIONER'S PERMIT
SALMON FIXED-LEADS – 2003
AMENDMENT A

NAME: Chignik Seafood Producers Alliance (CSPA) ADF&G # 2003-10-A

OPERATOR: Axel Kopun, President CSPA

ADDRESS: Summer: P.O. Box 30 Winter: 16435 Nicoli Way
Chignik Bay, AK 99564 Eagle River, AK 99577
phone: (907) 749-2204 phone: (907) 622-6226

In addition to current Chignik Management Area salmon commercial fishing regulations and other commissioner's permits, participants agree to the following conditions:

1) When a purse seine is attached to a lead as described in the Chignik Management Area Commissioner's Permit Salmon Fixed-leads – 2003, permit #2003-10, the purse seine vessel, the purse seine, and the lead may at any time go dry, provided that access for vessel traffic within the Chignik River at the Pillar Rock fishing site is maintained.

2) When a purse seine is attached to a lead as described in the Chignik Management Area Commissioner's Permit Salmon Fixed-leads – 2003, permit #2003-10, the vessel is not required to keep its engine running and the vessel may be anchored, provided that access for vessel traffic within the Chignik River at the Pillar Rock fishing site is maintained.

3) At night when a purse seine is attached to a lead as described in the Chignik Management Area Commissioner's Permit Salmon Fixed-leads – 2003, permit #2003-10, the vessel must display an appropriate red mast light to indicate fishing or a white light to indicate anchoring and there must be at least two white lights placed along the purse seine between the purse seine vessel and the lead.

4) In the Chignik Management Area, a vessel may have a purse seine or hand purse seine aboard as described in 5 AAC 15.332 and a total of two fixed-leads as described in the Chignik Management Area Commissioner's Permit Salmon Fixed-leads – 2003, permit # 2003-10.

-Continued-

Appendix A.2. (Page 2 of 2).

I _____, for the Board of Directors of the Chignik Seafood Producers Alliance, agree to abide by all permit terms stated above.

_____	_____
CHIGNIK SEAFOOD PRODUCERS ALLIANCE	DATE
_____	_____
ADF&G REPRESENTATIVE	DATE
